CLAIMS:

1. A hydroxyethylstarch having an average molecular weight, Mw, of greater than or equal to 500,000, characterized by having a molar substitution MS of from 0.25 to 0.5 and a C_2/C_6 ratio of from 2 to below 8.

2. The hydroxyethylstarch according to claim 1, characterized in that said molar substitution MS is from 0.35 to 0.5, preferably from 0.39 to smaller than or equal to 0.45, especially from greater than 0.4 to 0.44.

3. The hydroxyethylstarch according to either of claims 1 and 2, characterized in that said average molecular weight is from above 600,000 to 1,500,000, preferably from 620,000 to 1,200,000, more preferably from 700,000 to 1,000,000.

4. The hydroxyethylstarch according to any of claims 1 to 3, characterized in that said C_2/C_6 ratio is from 2 to 7, preferably from 2.5 to smaller than or equal to 7, more preferably from 2.5 to 6, even more preferably from 4 to 6.

5. The hydroxyethylstarch according to any of claims 1 to 4, characterized by being obtainable from a waxy maize starch.

6. A pharmaceutical formulation containing a hydroxyethylstarch according to any of claims 1 to 5.

7. The pharmaceutical formulation according to claim 6, characterized by being in the form of an aqueous solution or of a colloidal aqueous solution.

8. The pharmaceutical formulation according to either of claims 6 or 7, characterized in that said hydroxyethylstarch is in a concentration of up to 20%, preferably from 0.5 to 15%, more preferably from 2 to 12%, especially from 4 to 10%, for example, 6%.

9. The pharmaceutical formulation according to any of claims 6 to 8, characterized by additionally containing sodium chloride, preferably in a concentration of 0.9%.

10. The pharmaceutical formulation according to any of claims 6 to 9, characterized by additionally including plasma-adapted electrolytes.

11. The pharmaceutical formulation according to any of claims 6 to 10, characterized by being in the form of a buffered solution and/or of a solution with metabolizable anions.

12. The pharmaceutical formulation according to any of claims 6 to 11, characterized by being in the form of a hypertonic solution.

13. The pharmaceutical formulation according to any of claims 6 to 12, characterized by being sterile filtered or heat sterilized.

14. The pharmaceutical formulation according to any of claims 6 to 13, characterized by being a volume replacement.

15. The pharmaceutical formulation according to any of claims 6 to 14, characterized by containing a pharmaceutically active ingredient or a combination of active ingredients.

16. Use of a pharmaceutical formulation according to any of claims 6 to 15 for the preparation of a plasma replacement or plasma expander.

17. A process for the preparation of a hydroxyethylstarch, preferably one as defined in any of claims 1 to 5, by:

(i) reacting water-suspended starch, preferably corn starch, with ethylene oxide; and

(ii) then partially hydrolyzing the starch derivative obtained with acid, preferably hydrochloric acid, until the desired range of average molecular weight of the hydroxyethylstarch has been reached.

18. The process according to claim 17, characterized in that an alkalizing agent, preferably NaOH, is added to said water-suspended starch.

19. The process according to either of claims 17 or 18, characterized in that an alkalizing agent is added to said suspended starch in such an amount that the molar ratio of alkalizing agent to starch is larger than 0.2, preferably from 0.25 to 1, especially from 0.3 to 0.8.

20. The process according to any of claims 17 to 19, characterized by additionally comprising the steps of (iii) sterilization and optionally (iv) ultrafiltration.

21. Use of the pharmaceutical formulation according to any of claims 6 to 15 for maintaining normovolemia and/or for improving the macro- and microcirculation and/or for improving the nutritive oxygen supply and/or for stabilizing hemodynamics and/or for improving the volume efficiency and/or for reducing the plasma viscosity and/or for increasing anemia tolerance and/or for hemodilution, especially for therapeutic hemodilution in disturbed blood supply and arterial, especially peripheral arterial, occlusive diseases.

22. A kit comprising separately:

(i) the hydroxyethylstarch as defined in claims 1 to 5;

(ii) a sterile salt solution, preferably sodium chloride solution; and optionally

(iii) a pharmaceutically active ingredient or a combination of active ingredients.

23. The kit according to claim 22, characterized in that the individual components (i), (ii) and optionally (iii) are in separated compartments in a multi-compartment bag.